

REMARKS

A phone interview between the Examiner and Applicants' attorney was conducted on February 21, 2007. Applicants thank the Examiner for the opportunity to discuss the current amendments.

Claims 61, 63, 65, 67, 77, and 78 have been canceled, claims 43, 55, 70, 72, and 73 have been amended, and new claims 79-86 have been added.

Rejections Under 35 U.S.C. § 103

Claims 43-49, 51-62, 64-78 stand rejected under 35 U.S.C. 103(a) as unpatentable over Moore, Jr. in view of Doles. Claims 43 and 55 have been amended to include the limitation that the polysaccharide gum is welan gum. Claim 70 has been amended to include the limitation that the alumina particles have a particular range of particles sizes.

Obviousness requires that the references teach or suggest all elements of the claimed invention. Neither Moore, Jr. nor Dole teach or suggest the use of welan gum in an investment casting slurry. As discussed with the Examiner in the phone interview, the application describes that the welan gum "improves the workability of the composition by improving the suspension characteristics so that the components of the composition will not separate during application." (¶125) None of cited references teach or suggest a slurry composition including welan gum. Although Doles mentions the use of xanthan gum, the xanthan gum is used in the emissive coating surrounding an investment casting, not in the investment casting itself. The application also describes how the welan gum "helps to provide a uniform and stable distribution of the components of the mixture and reduces the need for multiple coats to produce a shell." (¶125) Thus, the claimed invention is capable of minimizing the number of coats required in the investment casting shell. None of the cited references teaches an investment coating process that is capable of the coating a substrate in as few as 1-3

coatings. Thus, claims 43-49, 51-62, 64-78 are not obvious. Applicants respectfully request that the rejections be withdrawn.

Additionally, claims 48, 69, and 70 are not obvious for the additional reason that none of the above references teaches or suggests an alumina component with particles of screen size 14x70 at about 40% to about 60% by weight of the composition and particles of screen size -70 at about 2% to about 10% by weight of the composition. Although the Examiner asserts that the use of the claimed particle distribution would be obvious, he presents no factual information supporting this assertion. It is known in the art that particle size has an important effect on the properties of the mold in investment casting. As discussed with the Examiner in the phone interview, depending on the particle size distribution of the alumina, the investment casting mold may be either too weak or too strong. If it is too weak, the mold may break during the casting process. If it is too strong, it may be difficult to break the mold to remove the final cast item. Thus, the particle size distribution is important. None of the references of record disclose or suggest the claimed particle size. Applicants respectfully request that the rejections be withdrawn.

Furthermore, none of the cited references teach or suggest the use of an investment casting slurry including about 45% to about 80% by weight alumina, about 10% to about 30% by weight silicon carbide, and about 10% to about 50% by weight colloidal silica binder. For this additional reason, claims 43-49, 51-62, 64-78 are not obvious.

New claims 79 and 83 require that the alumina particles have a particular size distribution. Thus, for the same reasons described above with respect to claims 48, 69, and 70, claims 79-86 are not obvious.

Claims 50 and 63 stand rejected under 35 U.S.C. 103(a) as unpatentable over Moore, Jr. in view of Doles and further in view of Schramm. For the same reasons described above for claims 43-49, 51-62, 64-78, the cited references do not disclose or suggest the claimed limitations. Therefore, claims 50 and 63 are not obvious. Applicants respectfully request that the rejections be withdrawn.

SUMMARY

Applicants believe the present application is now in condition for allowance. If the Examiner has any remaining issues, he is invited to contact the undersigned attorneys for the Applicants via telephone if such communication would expedite this application.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'Joseph Yosick', is written over a horizontal line.

Joseph Yosick
Registration No. 51,062
Attorney for Applicants

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
(312) 321-4200